

DIGESTION

A CHEMISTRY LAB—IN YOUR MOUTH?

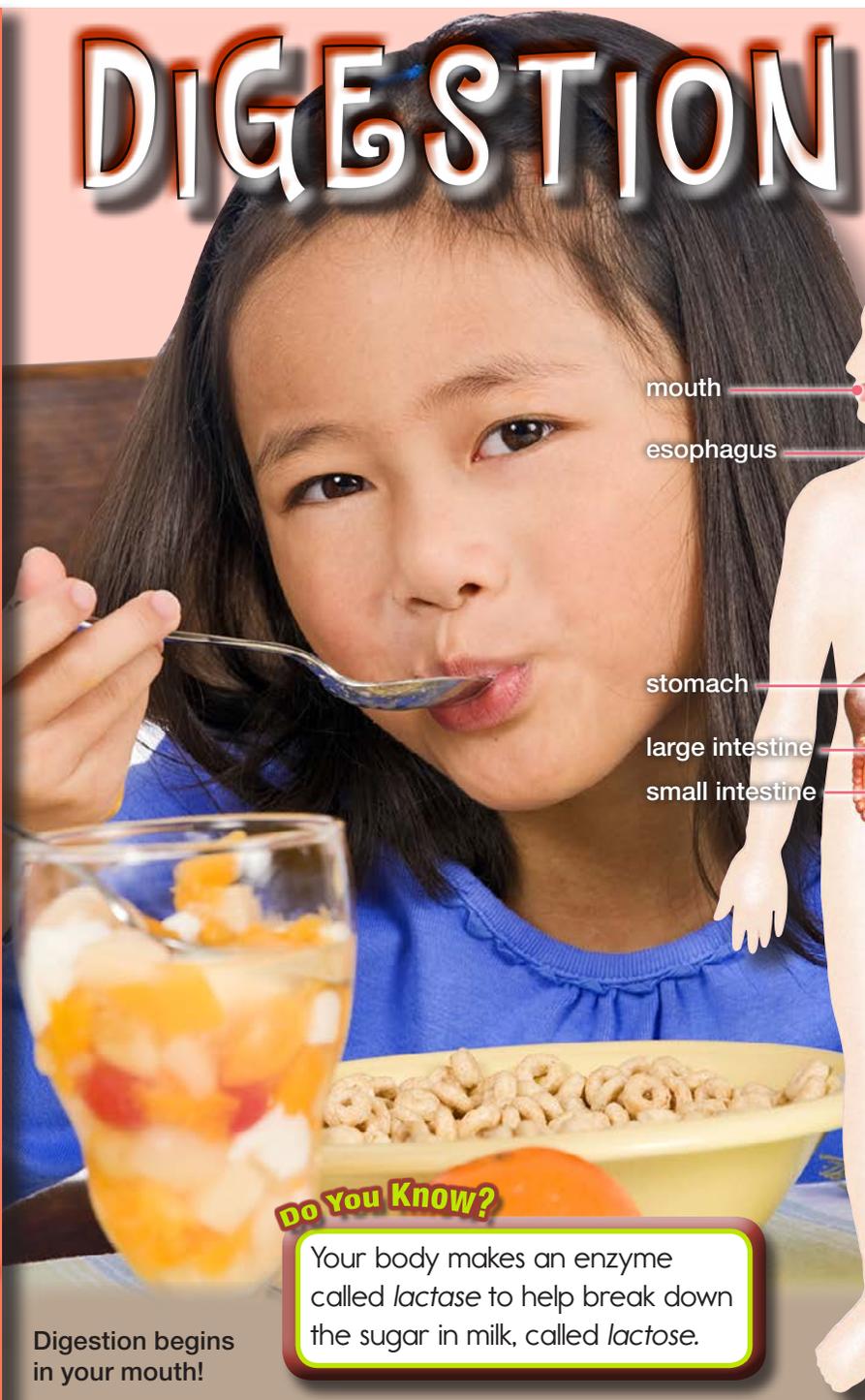
Imagine munching your breakfast cereal. Your teeth break up the chunks in your mouth. That's a *physical change*. But no matter how many times you chew your cereal, the pieces are still too big for your body to use. *Chemical changes* help break the food into pieces tiny enough for you to digest.

Digestion starts in your mouth. Your saliva (spit) contains enzymes. *Enzymes* are substances that can cause chemical changes. They rearrange the atoms in your food and release energy. But they do not destroy any atoms or create new ones. Enzymes in your saliva break the cereal into small molecules of a sugar called *glucose*. Your cells use glucose for fuel.

What's left of the cereal moves down a flexible tube called the *esophagus*.

The next stop is your stomach. Stomach acid and more enzymes help turn your cereal into a digestible, soupy mixture. As the food moves into your small intestine, other chemicals break it down even more. Nutrients pass into your bloodstream, while waste moves through your large intestine.

Without chemical changes during digestion, eating would be almost pointless!



Do You Know?

Your body makes an enzyme called *lactase* to help break down the sugar in milk, called *lactose*.

Digestion begins in your mouth!

Putting Out the Flames

Heartburn has nothing to do with your heart—or fire! It has to do with digestion.

Acid in your stomach helps you digest food. Your stomach has a lining that protects it. But sometimes the acid moves into your esophagus, which doesn't have protection. When this happens, you feel a burning in your chest.

If you get heartburn, an *antacid* may help. The antacid mixes with the acid in your stomach to produce a chemical change. This change creates new products—salt, water, and carbon dioxide—that soothe your “burning” esophagus.

Science in Your World

The chemical in many antacid tablets is called *sodium bicarbonate*. But you might know it as *baking soda*—an ingredient that's used in baking.



OUT-OF-BODY DIGESTION

Can digestion happen outside the body? Yes! When a rattlesnake strikes a mouse, the snake's fangs inject venom into the prey. The venom paralyzes the rodent. Snakes don't have teeth for chewing their prey. Instead, their venom contains a chemical that begins the digestion process by breaking down the cells of the rodent. This chemical change cannot be undone. Now it's easier for the rattlesnake to swallow the rodent whole! Once the rodent is in the snake's body, other chemicals break it down further.

Snakes don't chew their prey. They swallow it whole!



Do You Know?

Rattlesnake venom is really a kind of saliva. But this saliva can be deadly!